

(2278) Proposal to conserve the name *Serapias helleborine* (*Epipactis helleborine*) (*Orchidaceae*) with a conserved type

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(2278) *Serapias helleborine* L., Sp. Pl.: 949. 1 Mai 1753 [*Angiosp.: Orchid.*], nom. cons. prop.

Typus: Sweden, Uppland, “Helleborine latifolia, montana C.B. 186”, Aug 1730, Herb. Celsius 3: 330 (UPS-Celsius), typ. cons. prop.

While working on an all-inclusive publication on the orchids of Europe and adjacent regions, including their typification, the first author stumbled upon the troublesome situation concerning the name *Serapias helleborine* L., the basionym for the widespread and well-known broad-leaved helleborine or *Epipactis helleborine* (L.) Crantz (Stirp. Austr. Fasc., ed. 2: 467. 1769). Accepting the lectotype previously designated would cause serious destabilization of names in this widespread and well-known genus, a most unwanted situation we try to correct here.

Baumann (Orchid. Deutschl.: 376. 2005) already stated that all previous attempts to typify the name *Serapias helleborine* L. have failed, because they do not follow the rules of the *Code* (Baumann & al. in J. Eur. Orch. 34: 158–160. 2002) or are not acceptable as regards content (Vermeulen in Acta Bot. Neerl. 4: 239. 1955; Cribb & Wood in Taxon 48: 49. 1999) or have to be rejected on formal grounds (Baumann & al. in Mitteilungsbl. Arbeitskreis Heimische Orchid. Baden-Württemberg 21: 470–471, 592–593. 1989). The situation is clarified below.

In a first attempt to typify the name *Serapias helleborine*, Vermeulen (l.c.: 239, fig. 4), after an extensive study of the situation, designated fig. 40 in Haller (Hist. Stirp. Helv. 2: 131–159. 1768) as the “lectotype”. Because this illustration was not cited in the protologue (Linnaeus, Sp. Pl.: 949. 1753) and was published 15 years later, it clearly is not original material (Art. 9.3 of the ICN, McNeill & al. in Regnum Veg. 154. 2012) and can thus not serve as a lectotype (Art. 9.2). The action, however, is to be treated as a correctable error

(Art. 9.9) and Haller’s figure should be regarded as a neotype. Such a neotypification can only be overturned if (1) original material can be located, or (2) the choice is in serious conflict with the protologue (Art. 9.19). Apart from that, Haller’s fig. 40 depicts *Epipactis atrorubens* (Hoffm.) Besser (!), a species widely accepted as being distinct from *E. helleborine*, and so this typification would seriously destabilize nomenclature.

Then, Baumann & al. (l.c. 1989: 470) tried to correct the previous typification by choosing a plate from Bauhin & al. (Hist. Pl. 3: 516. 1651, left drawing), which was drawn after a plant collected by L. Fuchs around 1550 in the surroundings of Tübingen (Germany, Baden-Württemberg; Baumann & al., l.c. 1989: 592), as “lectotype”. Again, this plate is not cited in the protologue and it cannot be shown that Linnaeus’s name was based in any way on this plate (so as to comply with Art. 9.3a) and hence it also does not represent original material and cannot serve as a lectotype. Cribb & Wood (l.c.) arrived at the same conclusion. Therefore, this “lectotypification” would also be regarded as an error to be corrected, and the action would be treated as a neotypification, which is then actually superfluous.

Finally, Cribb & Wood (l.c.) tried to settle the situation. First, they rightfully concluded that in fact more than a single nomenclatorial element is involved. Below the species *Serapias helleborine*, Linnaeus cited no less than seven elements denoted with the Greek letters α to η . Although Linnaeus did not indicate a rank for these elements, they are regarded as varieties (Art. 37.4, see Art. 9 Ex. 4 and Art. 26 Ex. 3 & 4). Only three of these varieties were given an explicit name in the margin, in normal font to distinguish them from the species epithets that appear in italics. The variety α bears the name “*latifolia*”, with which Linnaeus seemed to imply the typical variety (more about this below). However, according to C. Jarvis (pers. comm.) it is best to regard the species name and the α varietal name as two distinct nomenclatorial elements, and typify them separately.

Cribb & Wood (l.c.) chose two specimens from the Burser Herbarium at Uppsala (UPS-Burser) to serve as the types for the two elements. It is well known that Linnaeus studied this herbarium thoroughly (Savage in Proc. Linn. Soc. London, 148th session, part 1: 16–26. 1935; Linn. Det. Hort. Sicc. Burs. 1937) and such specimens have served as useful lectotypes in many other cases as well (e.g. Rafaelli in Taxon 32: 115–117. 1983; Marhold in Willdenowia 31: 43–49. 2001; Loos & Jarvis in Bot. J. Linn. Soc. 108: 399–408. 2008). This automatically supersedes the two previous neotypifications of Vermeulen (l.c.: 239) and Baumann & al. (l.c. 1989: 470) because original material has now been located (Art. 9.19). Cribb & Wood (l.c.) designated sheet 39 in vol. X of UPS-Burser as lectotype for the name *Serapias helleborine* var. *latifolia* L. This sheet carries a label with the phrase name “Helleborine latifolia montana Bauh.,” clearly referring to this element in the protologue. However, as lectotype for the species name *Serapias helleborine* they have chosen sheet 40 in vol. X of UPS-Burser. A most unfortunate choice, because this sheet represents a specimen of the widely accepted related species named *Epipactis atrorubens* (Hoffm.) Besser! This identity can be established by the more narrow leaves, the length of the uppermost leaf (not reaching the inflorescence), the shorter bracts, and the indumentum and colour (reddish) of the upper stem part and developing fruits. Hence, if followed, this typification would have a seriously destabilizing effect on the currently accepted nomenclature in this group of common orchid species. What makes the error of Cribb & Wood (l.c.) even less understandable is the fact that the sheet carries a label with the phrase name “Helleborine altera atrorubente flore Bauh.,” which points to the dark red flower colour and is cited by Linnaeus below his unnamed variety ϵ ! Because of that, one might think that this material also does not represent original material for the typical element (*S. helleborine* var. *helleborine*) of the species, but rather for one of its varieties, and should be ineligible as a lectotype. However, the ICN is clear (Art. 9.5 Ex. 4) that material from any unnamed infraspecific element constitutes original material for that species name and can thus serve as a lectotype. Hence, we conclude that Cribb & Wood’s choice must be accepted and because of the major upheaval this will cause, we see no other way than to conserve the name *Serapias helleborine* with a conserved type.

It is therefore necessary to look for suitable material to serve as the conserved type for the name *Serapias helleborine*. In the protologue, the phrase name of the typical element is followed by five references to publications. It has already been reported (Vermeulen, l.c.) that no suitable material exists in the Linnaean herbarium, nor amongst the Clifford material present in the British Museum, at Leiden and at Wageningen (<http://www.george-clifford.nl>). Still, we have carefully checked all five references, and our conclusions are briefly summarized here:

Act. ups. (Acta Soc. Regiae Sci. Upsal.): 21. 1740, no illustration, but all synonyms cited under var. *α latifolia* in the protologue are treated here under the species itself, not its numerous accepted infraspecific elements.

Fl. suec. (*Flora Suecica*): 263–264 (no. 734). 1745, no illustration, the first synonym phrase name of var. *α latifolia* in the protologue is here added to the species entry, while the remaining two are accommodated in an element *α* .

It. oel. (Öländ. Gothl. Resa): 144. 1745, this seems an erroneous reference; page 144 provides a phrase name cited under Linnaeus’s var. ζ *longifolia* in *Species Plantarum*, below which the same reference to page 144 is present.

It. gotl. (Öländ. Gothl. Resa): 225, 196 (“197”), 230. 1745, no

illustration, pages 196 and 225 refer to C. Bauhin’s phrase name, which in the protologue is cited below var. *α latifolia*.

Dalib. Paris (Dalibard, Fl. Paris. Prodr.): 276. 1749, no illustration, here the species itself includes two synonyms cited in the protologue under var. *α latifolia*, with other infraspecific elements defined representing Linnaeus’s unnamed var. δ and var. ζ *longifolia* and η *palustris*.

In the last 30-odd years, the first author has visited almost every European herbarium in search of types for orchid names, but never came across material that could be directly associated with any of the five references provided with the name *Serapias helleborine*. Moreover, from the above it is clear that Linnaeus was struggling with his nomenclature and especially his var. *α latifolia*, as was also shown by Vermeulen (l.c.: 226–241). We have become convinced that, in fact, he meant to indicate the typical form with this variety, as opposed to the other elements. This brings us to the discussion on Linnaean varieties nicely introduced already by Sprague (in Proc. Linn. Soc. London 165: 152–154. 1955), who concluded that Linnaeus did not use varieties in a consistent way and that each case has to be evaluated on its own merits. We believe, however, that at least within orchids Linnaeus (l.c.: 939–954) was highly consistent in starting with a taxon “ α ” indicating the typical element, or starting with a taxon “ β ” when he wanted to indicate the element or elements deviating from the typical form. A quite similar situation was encountered in *Dianthus caryophyllus* L. and interpreted in the same way by de Langen & al. (in Taxon 33: 716–724. 1984) in their subsequent lectotypifications.



Fig. 1. Proposed conserved type of *Serapias helleborine* L. in Herb. Celsius (UPS-Celsius), vol. 3: 330.

Thus, based on the above, but also because there seems to be general consensus in orchid literature that var. *latifolia* and var. *helleborine* refer to the same taxon (Sundermann, *Europ. Medit. Orch.*: 207. 1975; Renz & Taubenheim in Davis, *Fl. Turkey* 8: 464. 1984; Buttler, *Orch.*: 18. 1986; Brown & Argus, *Fl. N. Amer.* 26: 586. 2002; Bournérias & Prat, *Orch. France, Belg. & Luxemb.*: 432. 2005; Delforge, *Orch. Eur., N. Afr. & Middle East*: 65. 2006; Vakhrammeva & al., *Orch. Russia*: 157. 2008), it would seem logical to interlock the two nomenclatural elements by choosing the type of the first, UPS-Burser X: 39, to also serve as the type of the second. However, that plant carries only closed flowers and the label further states “Wilde nießwurtz, In Sylvis Misniae, Helvetiae, Daniae”, implying it occurred in Sachsen (Germany), Switzerland and Denmark. Thus the identity of the plant remains uncertain, since it could also represent *Epipactis leptochila* (Godfery) Godfery subsp. *neglecta* Kämpel or another taxon. So, to maximize nomenclatorial stability, we tried to locate another suitable type.

Another herbarium that was thoroughly studied by Linnaeus is that of Olof Celsius at Uppsala (UPS-Celsius or *Flora Uplandica*). It consists of four volumes with 765 specimens collected in 1730 in the Swedish province of Uppland. A fifth volume contains handwritten explanations and an alphabetical content. Celsius (1670–1756), Theology Professor of the University of Uppsala and an amateur botanist, supported the younger Linnaeus as his mentor and undertook several

joint excursions in Uppland where they collected plants (Hjertson 2012, in litt.). Numerous letters from Celsius to Linnaeus in the period 1736 to 1739 (<http://correspondence.linnaean-online.org>) are proof of their close cooperation. Material from the *Flora Uplandica* has been used before to typify Linnaean names, e.g., *Allium schoenoprasum* L. (De Wilde-Duyfjes in *Taxon* 22: 82. 1973). Sheet 330 in Volume 3 of this herbarium holds a specimen of true *Epipactis helleborine* with open flowers showing the correct features (Fig. 1). Moreover, because it was collected in Uppland, where none of the closely related taxa occur, there is no doubt about its identity. Because of that, we have chosen this specimen to serve as the conserved type.

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